

**CLAIMS**

1. (Original) A method of dynamically assigning a home agent, the method comprising the steps of:

receiving an access request message indicating a request for mobile IP services;  
assigning the home agent from a pool of available home agents; and  
transmitting a home agent address of the home agent.

2. (Original) The method of Claim 1, wherein the access request message is a RADIUS ACCESS REQUEST message.

3. (Original) The method of Claim 1, wherein the step of transmitting further comprises transmitting the home agent address in a RADIUS ACCESS ACCEPT message.

4. (Original) The method of Claim 1, wherein the access request message indicates dynamic home agent assignment and the step of assigning the home agent further comprises the step of selecting a preferred home agent.

5. (Original) The method of Claim 1, wherein the access request message indicates dynamic home agent assignment and the step of assigning the home agent further comprises the step of selecting a preferred home agent, wherein the preferred home agent is determined by at least one of round robin scheduling, weighted least connections scheduling, sticky connections scheduling, and weighted least load first scheduling.

6. (Original) The method of Claim 1, wherein the access request message indicates semi-static home agent assignment and the step of assigning the agent further comprises the step of selecting the home agent containing a specified home address.

7. (Original) The method of Claim 1, wherein the access request message indicates semi-static home agent assignment and the step of assigning the agent further comprises the step of assigning a home address belonging to a specified home agent.

8. (Original) A method of dynamically assigning a home agent, the method comprising the steps of:

- receiving an indication of the availability of one or more home agents;
- receiving an access request message indicating a request for mobile IP services, the access request message having a first home agent address and a first home address;
- determining whether the first home agent address and the first home address indicate a request for dynamic home agent assignment;
- upon a determination that the first home agent address and the first home address indicate a request for dynamic home agent assignment, performing the substeps of:
  - assigning the home agent from a pool of available home agents; and
  - transmitting a second home agent address of the home agent;
- determining whether the first home agent address and the first home address indicate a request for a particular home agent;
- upon a determination that the first home agent address and the first home address indicate a request for a particular home agent, transmitting the home agent address of the particular home agent;
- determining whether the first home agent address and the first home address indicate a request for a particular home agent address;
- upon a determination that the first home agent address and the first home address indicate a request for a particular home address, transmitting the home agent address of the home agent containing the particular home address;
- determining whether the first home agent address and the first home address indicate a request for a static home agent; and
- upon a determination that the first home agent address and the first home address indicate a request for a static home address, transmitting the home agent address of the static home address.

9. (Original) The method of Claim 8, further comprising the step of transmitting by the home agent a periodic heartbeat message.

10. (Original) The method of Claim 8, wherein the access request message is a RADIUS ACCESS REQUEST message.

11. (Original) The method of Claim 8, wherein the step of transmitting further comprises transmitting the home agent address in a RADIUS ACCESS ACCEPT message.

12. (Original) The method of Claim 8, wherein the step of assigning the home agent further comprises the step of selecting a preferred home agent, wherein the preferred home agent is determined by at least one of round robin scheduling, weighted least connections scheduling, sticky connections scheduling, and weighted least load first scheduling.

13. (Original) The method of Claim 8, wherein the step of assigning the home agent from a pool of available home agents is performed by the steps of:

- receiving a status message from one or more of the pool of one or more home agents;
- determining whether the status message includes an AVAILABLE indication or a NOT AVAILABLE indication;
- upon a determination that the status message includes an AVAILABLE indication, indicating that the home agent is available; and
- upon a determination that the status message includes a NOT AVAILABLE indication, indicating that the home agent is not available.

14. (Original) A method of dynamically managing a pool of one or more home agents, the method comprising the steps of:

- receiving a status message from one or more of the pool of one or more home agents;
- determining whether the status message includes an available indication or a not available indication;
- upon a determination that the status message includes an available indication, indicating that the home agent is available; and
- upon a determination that the status message includes a not available indication, indicating that the home agent is not available.

15. (Withdrawn) A method of dynamically assigning an IP address, the method comprising the steps of:

receiving a request for IP services;

determining whether the request includes a request for a dynamic IP address;

upon a determination that the request includes a request for a dynamic IP address, performing the substeps of:

assigning the dynamic IP address; and

transmitting a reply including the dynamic IP address; and

upon a determination that the request includes a request for a static IP address, performing the substeps of:

assigning the static IP address; and

transmitting a reply including the static IP address.

16. (Withdrawn) The method of Claim 15, wherein the step of assigning the dynamic IP address further comprises the step of selecting a preferred home agent, wherein the preferred home agent is determined by at least one of round robin scheduling, weighted least connections scheduling, sticky connections scheduling, and weighted least load first scheduling.

17. (Original) An apparatus for dynamically assigning a home agent, the apparatus comprising:

means for receiving an access request message indicating a request for mobile IP services;

means for assigning the home agent from a pool of available home agents; and

means for transmitting a home agent address of the home agent.

18. (Original) The apparatus of Claim 17, wherein the access request message indicates dynamic home agent assignment and the means for assigning the home agent further comprises means for selecting a preferred home agent, wherein the preferred home agent is determined by at least one of round robin scheduling, weighted least connections scheduling, sticky connections scheduling, and weighted least load first scheduling.

19. (Original) The apparatus of Claim 17, wherein the access request message indicates semi-static home agent assignment and the means for assigning the agent further comprises means for selecting the home agent containing a specified home address.

20. (Original) The apparatus of Claim 17, wherein the access request message indicates semi-static home agent assignment and the means for assigning the agent further comprises means for assigning a home address belonging to a specified home agent.

21. (Original) An apparatus for dynamically assigning a home agent, the apparatus comprising:

- means for receiving an indication of the availability of one or more home agents;
- means for receiving an access request message indicating a request for mobile IP services, the access request message having a first home agent address and a first home address;
- means for determining whether the first home agent address and the first home address indicate a request for dynamic home agent assignment;
- means, upon a determination that the first home agent address and the first home address indicate a request for dynamic home agent assignment, for assigning the home agent from a pool of available home agents, and transmitting a second home agent address of the home agent;
- means for determining whether the first home agent address and the first home address indicate a request for a particular home agent;
- means, upon a determination that the first home agent address and the first home address indicate a request for a particular home agent, for transmitting the home agent address of the particular home agent;
- means for determining whether the first home agent address and the first home address indicate a request for a particular home agent address;
- means, upon a determination that the first home agent address and the first home address indicate a request for a particular home address, for transmitting the home agent address of the home agent containing the particular home address;

means for determining whether the first home agent address and the first home address indicate a request for a static home agent; and

means, upon a determination that the first home agent address and the first home address indicate a request for a static home address, for transmitting the home agent address of the static home address.

22. (Original) The apparatus of Claim 21, further comprising means for transmitting by the home agent a periodic heartbeat message.

23. (Original) The method of Claim 21, wherein the step of assigning the home agent from a pool further comprises the step of selecting a preferred home agent, wherein the preferred home agent is determined by at least one of round robin scheduling, weighted least connections scheduling, sticky connections scheduling, and weighted least load first scheduling.

24. (Original) The apparatus of Claim 21, wherein the means for assigning the home agent from a pool of available home agents further comprises:

means for receiving a status message from one or more of the pool of one or more home agents;

means for determining whether the status message includes an AVAILABLE indication or a NOT AVAILABLE indication;

means, upon a determination that the status message includes an AVAILABLE indication, for indicating that the home agent is available; and

means, upon a determination that the status message includes a NOT AVAILABLE indication, for indicating that the home agent is not available.

25. (Original) An apparatus for dynamically managing a pool of one or more home agents, the apparatus comprising:

means for receiving a status message from one or more of the pool of one or more home agents;

means for determining whether the status message includes an available indication or a not available indication;

means, upon a determination that the status message includes an available indication, for indicating that the home agent is available; and  
means, upon a determination that the status message includes a not available indication, for indicating that the home agent is not available.

26. (Withdrawn) An apparatus for dynamically assigning an IP address, the method comprising the steps of:

means for receiving a request for IP services;  
means for determining whether the request includes a request for a dynamic IP address;  
means, upon a determination that the request includes a request for a dynamic IP address, for assigning the dynamic IP address and transmitting a reply including the dynamic IP address; and  
means, upon a determination that the request includes a request for a static IP address, for assigning the static IP address and transmitting a reply including the static IP address.